

Patent claims

1. Process for the packet-oriented transmission of security-relevant data (11, 11b, 12, 12b), in particular under application of at least one transmission system comprising a parallel and/or serial network and/or bus system with at least one user connected to it, where in addition to the security-relevant data (11, 11b, 12, 12b) a redundant information based on the data (21, 21b) is transmitted, characterized in that the security-relevant data (11, 11b, 12, 12b) and the redundant information based on this data (21, 21b) is transmitted in different packets (1, 1b, 2, 2b).
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- 10 2. Process according to Claim 1 characterized in that the redundant information (21, 21b) is encoded.
- 15 3. Process according to Claim 1 or 2 characterized in that the redundant information (21, 21b) is a check sum (CRC) calculated over the security-relevant data.
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- 25 4. Process according to Claim 1, 2 or 3 characterized in that the security-relevant data comprise user data (11, 11b), check data (12, 12b) and/or control data.
- 30 5. Process according to one of the Claims 1 through 4 characterized in that several packets (1, 1b, 2, 2b) are transmitted within a predefined (superset) frame structure.
6. Process according to one of the Claims 1 through 5 characterized in that the packets within a predefined (superset) frame structure) comprise security-relevant data (11, 11b, 12, 12b) and redundant information (21,

21b) that are allocated to each other.

7. Process according to one of the Claims 1 through 6
characterized in that the packets (1, 1b, 2, 2b) with
5 security-relevant data (11, 11b, 12, 12b) and redundant
information (21, 21b) that are allocated to each other
are transmitted in a parallel or serial way.

8. Process according to one of the Claims 1 through 7
10 characterized in that the packets (1, 1b, 2, 2b) with
security-relevant data and redundant information that
are allocated to each other are transmitted in strings
or separately.

15 9. Process according to one of the Claims 1 through 8
characterized in that the packets (1, 1b, 2, 2b)
comprise an addressing block and/or an identification
code for their logical allocation.

20 10. Device, in particular for a transmission system with at
least one parallel and/or serial network and/or bus
system, for the packet-oriented transmission of
security-relevant data (11, 11b, 12, 12b) comprising
means - arranged on the side of the sender - for the
25 packet-oriented embedding of security-relevant data (11,
11b, 12, 12b) and allocated redundant information (21,
21b) into different packets (1, 1b, 2, 2b).

11. Device according to Claim 10, characterized by an
30 encoding device for the encoding of the redundant
information (21, 21b).

12. Device according to Claim 10 or 11 characterized in that
the means for embedding are allocated means for the
35 generation of redundant information (21, 21b) with the

same number of bits (n) as the security-relevant data (11, 11b, 12, 12b) to be transmitted.

13. Device according to Claim 10,11 or 12 characterized in
5 that the means for the generation and/or embedding are
designed such that any possible combination of security-
oriented data (11, 11b, 12, 12b) of a packet (1, 1b)
unambiguously results in exactly one of the possible
combinations with allocated redundant information (21,
10 21b) within the packet (2, 2b).
14. Device, in particular for a transmission system with at
least one parallel and/or serial network and/or bus
system, for the packet-oriented transmission of
15 security-relevant data (11, 11b, 12, 12b), in particular
according to one of the Claims 10 through 13
characterized by means arranged on the side of the
receiver for the verification of an error-free data
transmission based on security-relevant data (11, 11b,
20 12, 12b) and allocated redundant information (21, 21b)
embedded in different packets (1, 1b, 2, 2b).
15. Device according to Claim 14 characterized in that the
means for the verification are allocated means for
25 reading out and allocating security-relevant data (11,
11b, 12, 12b) and allocated redundant information (21,
21b) received in different packets.
16. Device according to one of the Claims 10 through 15
30 characterized in that several packets (1, 1b, 2, 2b)
with security-relevant data (11, 11b, 12, 12b) and/or
allocated redundant information (21, 21b) can be
transmitted within a predefined (superset) frame
structure.

17. Device according to one of the Claims 10 through 16 characterized by means for the packet-oriented embedding and readout of addressing blocks and/or identification codes for the logical allocation of individual packets (1, 1b, 2, 2b) and/or their contents (11, 11b, 12, 12b, 21, 21b) to each other.
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18. Device according to one of the Claims 10 through 17 characterized in that the means are allocated to slave devices and/or a master device.
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19. Transmission system with at least one parallel and/or serial network and/or bus system and with at least one device according to one of the Claims 10 through 18.
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20. Transmission system according to Claim 19 wherein there is at least one ring-, line-, star- and/or tree-shaped network and/or bus structure.
- 20 21. Transmission system according to Claim 19 or 20 comprising at least one Interbus, one Ethernet, one Profibus and/or one CAN.
22. Use of a transmission system according to Claim 19, 20 or 21 in the fields of building control technology, process industry, manufacturing industry, passenger transportation and/or for the operation of an automation plant.
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